

IN THE CLAIMS:

1. (Currently Amended) A driving method of a MOS sensor comprising a plurality of pixels in an image pick up unit, each of said pixels comprising:

a reset transistor;

a photoelectric conversion element having a first terminal connected to one of source or drain terminals of said reset transistor, and a second terminal connected to a photoelectric conversion element side power source line;

a reset signal line electrically connected to a gate terminal of said reset transistor;

a signal amplifier circuit having an input terminal connected to said one of the source or drain terminals of said reset transistor; and

a reset side power source line connected to other one of the source or drain terminals of said reset transistor,

said method comprising the steps of:

imaging a first object on trial, comprising the steps of:

resetting said plurality of pixels at a same time; and

sequentially selecting at least a part of said plurality of pixels to output signals of the selected pixels[.]; and

imaging a second object ordinarily.

2. (Original) The method according to claim 1 further comprising a step of selecting the pixels of only a limited area of the image pick up unit to output signals from the selected pixels.

3. (Currently Amended) A driving method of a MOS sensor having a plurality of pixels in an image pick up unit, each of said pixels comprising:

a reset transistor;

a photoelectric conversion element having a first terminal connected to one of source or drain terminals of said reset transistor, and a second terminal connected to a photoelectric conversion element side power source line;

a reset signal line connected to a gate terminal of said reset transistor;

a signal amplifier circuit having an input terminal connected to said one of the source or drain terminals of said reset transistor;

a reset side power source line connected to other one of the source or drain terminals of said reset transistor;

said method comprising the steps of:

imaging a first object on trial, comprising the steps of:

resetting said plurality of pixels at a same time; and

sequentially selecting at least a part of said plurality of pixels to output signals of the selected pixels; and

determining a storage period in accordance with a period from the time of said resetting to a time when the signal of the selected pixels saturate[.]; and

imaging a second object in the storage period.

4. (Currently Amended) A driving method of a MOS sensor having a plurality of pixels in an image pick up unit, each of said pixels comprising:

a reset transistor;

a photoelectric conversion element having a first terminal connected to one of source or drain terminals of said reset transistor, and a second terminal connected to a photoelectric conversion element side power source line;

a reset signal line connected to a gate terminal of said reset transistor;

a signal amplifier circuit having an input terminal connected to said one of the source or drain terminals of said reset transistor;

a reset side power source line connected to other one of the source or drain terminals of said reset transistor;

said method comprising the steps of:

imaging a first object on trial, comprising the steps of:

resetting said plurality of pixels at a same time; and

sequentially selecting a par of the plurality of pixels to output signals of the selected pixels; and

determining a storage period in accordance with a period from the time of said resetting to a time when one of the signals of the selected pixels saturates[.]; and

imaging a second object in the storage period;

wherein said one of the signals has a largest signal amplitude among the signals of the selected pixels.

5. (Currently Amended) A driving method of a MOS sensor having a plurality of pixels in an image pick up unit, each of said pixels comprising:

a reset transistor;

a photoelectric conversion element having a first terminal connected to one of source or drain terminals of said reset transistor, and a second terminal connected to a photoelectric conversion element side power source line;

a reset signal line connected to a gate terminal of said reset transistor;

a signal amplifier circuit having an input terminal connected to said one of the source or drain terminals of said reset transistor;

a reset side power source line connected to other one of the source or drain terminals of said reset transistor;

said method comprising the steps of:

imaging a first object on trial, comprising the steps of:

resetting said plurality of pixels at a same time; and

sequentially selecting the plurality of pixels to output signals of the selected pixels;

and

determining a storage period in accordance with a period from the time of said resetting to a time when the photoelectric conversion element(s) of the selected pixels saturates[.]; and

imaging a second object in the storage period.

6. (Currently Amended) A driving method of a MOS sensor having a plurality of pixels in an image pick up unit, each of said pixels comprising:

a reset transistor;

a photoelectric conversion element having a first terminal connected to one of source or drain terminals of said reset transistor, and a second terminal connected to a photoelectric conversion element side power source line;

a reset signal line connected to a gate terminal of said reset transistor;
a signal amplifier circuit having an input terminal connected to said one of the source or drain terminals of said reset transistor;
a reset side power source line connected to other one of the source or drain terminals of said reset transistor;
said method comprising the steps of:
imaging a first object on trial, comprising the steps of:
resetting a part of said plurality of pixels at a same time; and
sequentially selecting the plurality of pixels to output signals of the selected pixels;
and
determining a storage period in accordance with a period from the time of said resetting to a time when any one of the photoelectric conversion elements of the selected pixels saturates[.]; and
imaging a second object in the storage period.

7. (Original) The method according to claim 3 wherein a value of said storage period is set by irradiating said image pick up unit with light having a highest intensity among lights which have been reflected by an object to enter said image pick up unit.

8. (Original) The method according to claim 4 wherein a value of said storage period is set by irradiating said image pick up unit with light having a highest intensity among lights which have been reflected by an object to enter said image pick up unit.

9. (Original) The method according to claim 5 wherein a value of said storage period is set by irradiating said image pick up unit with light having a highest intensity among lights which have been reflected by an object to enter said image pick up unit.

10. (Original) The method according to claim 6 wherein a value of said storage period is set by irradiating said image pick up unit with light having a highest intensity among lights which have been reflected by an object to enter said image pick up unit.

11. (Original) The method according to claim 3 wherein the signals are outputted exclusively from those of the plurality of pixels of said image pick up unit that belong to a limited area.

12. (Original) The method according to claim 4 wherein the signals are outputted exclusively from those of the plurality of pixels of said image pick up unit that belong to a limited area.

13. (Original) The method according to claim 5 wherein the signals are outputted exclusively from those of the plurality of pixels of said image pick up unit that belong to a limited area.

14. (Original) The method according to claim 6 wherein the signals are outputted exclusively from those of the plurality of pixels of said image pick up unit that belong to a limited area.

15. (Original) The method according to claim 3 wherein the image of an object is picked up by using said storage period.

16. (Original) The method according to claim 4 wherein the image of an object is picked up by using said storage period.

17. (Original) The method according to claim 5 wherein the image of an object is picked up by using said storage period.

18. (Original) The method according to claim 6 wherein the image of an object is picked up by using said storage period.

19. (Currently Amended) A MOS sensor comprising a plurality of pixels in an image pickup unit,

wherein said pixel includes a photoelectric conversion element, a resetting transistor and a signal amplifier circuit,

wherein said photoelectric conversion element is connected at its one terminal with the source terminal or drain terminal of said resetting transistor and at its other terminal with a photoelectric conversion element side power line,

wherein said resetting transistor is connected at its gate terminal with a reset signal line, and

wherein said resetting transistor is connected at its source terminal or drain terminal with said photoelectric conversion element and the input terminal of said signal amplifier circuit and at its other with a reset side power line,

whereby, in a trial imaging period, the a plurality of first pixels of said image pickup unit are sequentially selected, after all the plurality of the pixels reset simultaneously, so that the signals of the selected pixels are outputted[[]], and

whereby, in an ordinary imaging period, a plurality of second pixels of said image pickup unit are selected.

20. (Original) A MOS sensor according to claim 19, wherein the signals are outputted exclusively from those of the plurality of pixels of said image pickup unit that belong to a limited area.

21. (Currently Amended) A MOS sensor comprising a plurality of pixels in an image pickup unit,

wherein said pixel includes a photoelectric conversion element, a resetting transistor and a signal amplifier circuit,

wherein said photoelectric conversion element is connected at its one terminal with the source terminal or drain terminal of said resetting transistor and at its other terminal with a photoelectric conversion element side power line,

wherein said resetting transistor is connected at its gate terminal with a reset signal line, and

wherein said resetting transistor is connected at its source terminal or drain terminal with said photoelectric conversion element and the input terminal of said signal amplifier circuit and at its other with a reset side power line,

whereby, in a trial imaging period, the a plurality of first pixels of said image pickup unit are sequentially selected, after all the plurality of the pixels reset simultaneously, so that the signals of the selected pixels are outputted, and

whereby the period from said reset time to the time when the signals of said selected pixels are saturated is set to the value of a storage period[[]] and

whereby, in the storage period, a plurality of second pixels of said image pickup unit are selected.

22. (Currently Amended) A MOS sensor comprising a plurality of pixels in an image pickup unit,

wherein said pixel includes a photoelectric conversion element, a resetting transistor and a signal amplifier circuit,

wherein said photoelectric conversion element is connected at its one terminal with the source terminal or drain terminal of said resetting transistor and at its other terminal with a photoelectric conversion element side power line,

wherein said resetting transistor is connected at its gate terminal with a reset signal line, and

wherein said resetting transistor is connected at its source terminal or drain terminal with said photoelectric conversion element and the input terminal of said signal amplifier circuit and at its other with a reset side power line,

whereby, in a trial imaging period, the a plurality of first pixels of said image pickup unit are sequentially selected, after all reset simultaneously, so that the signals of the selected pixels are outputted, and

whereby the period from said reset time to the time when the signal having the largest amplitude of said selected pixels is saturated is set to the value of a storage period[[]], and

whereby, in the storage period, a plurality of second pixels of said image pickup unit are selected.

23. (Currently Amended) A MOS sensor comprising a plurality of pixels in an image pickup unit,

wherein said pixel includes a photoelectric conversion element, a resetting transistor and a signal amplifier circuit,

wherein said photoelectric conversion element is connected at its one terminal with the source terminal or drain terminal of said resetting transistor and at its other terminal with a photoelectric conversion element side power line,

wherein said resetting transistor is connected at its gate terminal with a reset signal line, and

wherein said resetting transistor is connected at its source terminal or drain terminal with said photoelectric conversion element and the input terminal of said signal amplifier circuit and at its other with a reset side power line,

whereby, in a trial imaging period, the a plurality of first pixels of said image pickup unit are sequentially selected, after all the plurality of the pixels reset simultaneously, so that the signals of the selected pixels are outputted, and

whereby the period from said reset time to the time when the photoelectric conversion elements of said selected pixels are saturated is set to the value of a storage period[[.]], and

whereby, in the storage period, a plurality of second pixels of said image pickup unit are selected.

24. (Currently Amended) A MOS sensor comprising a plurality of pixels in an image pickup unit,

wherein said pixel includes a photoelectric conversion element, a resetting transistor and a signal amplifier circuit,

wherein said photoelectric conversion element is connected at its one terminal with the source terminal or drain terminal of said resetting transistor and at its other terminal with a photoelectric conversion element side power line,

wherein said resetting transistor is connected at its gate terminal with a reset signal line, and

wherein said resetting transistor is connected at its source terminal or drain terminal with said photoelectric conversion element and the input terminal of said signal amplifier circuit and at its other with a reset side power line,

whereby, in a trial imaging period, the a plurality of first pixels of said image pickup unit are sequentially selected, after all reset simultaneously, so that the signals of the selected pixels are outputted, and

whereby the period from said reset time to the time when any one of the photoelectric conversion elements of said selected pixels is saturated is set to the value of a storage period[[.]], and

whereby, in the storage period, a plurality of second pixels of said image pickup unit are selected.

25. (Original) A MOS sensor according to claim 21

wherein the value of said storage period is set by irradiating said image pickup unit with that of the highest intensity of the lights which have been reflected by an object to enter said image pickup unit.

26. (Original) A MOS sensor according to claim 22 wherein the value of said storage period is set by irradiating said image pickup unit with that of the highest intensity of the lights which have been reflected by an object to enter said image pickup unit.

27. (Original) A MOS sensor according to claim 23 wherein the value of said storage period is set by irradiating said image pickup unit with that of the highest intensity of the lights which have been reflected by an object to enter said image pickup unit.

28. (Original) A MOS sensor according to claim 24 wherein the value of said storage period is set by irradiating said image pickup unit with that of the highest intensity of the lights which have been reflected by an object to enter said image pickup unit.

29. (Original) A MOS sensor according to claim 23 wherein the signals are outputted exclusively from those of the plurality of pixels of said image pickup unit that belong to a limited area.

30. (Original) A MOS sensor according to claim 24 wherein the signals are outputted exclusively from those of the plurality of pixels of said image pickup unit that belong to a limited area.

31. (Original) A MOS sensor according to claim 25 wherein the signals are outputted exclusively from those of the plurality of pixels of said image pickup unit that belong to a limited area.

32. (Original) A MOS sensor according to claim 26 wherein the signals are outputted exclusively from those of the plurality of pixels of said image pickup unit that belong to a limited area.

33. (Original) A MOS sensor according to claim 23 wherein the image of an object is picked up by using said storage period.

34. (Original) A MOS sensor according to 24 wherein the image of an object is picked up by using said storage period.

35. (Original) A MOS sensor according to claim 25 wherein the image of an object is picked up by using said storage period.

36. (Original) A MOS sensor according to claim 26 wherein the image of an object is picked up by using said storage period.

37. (Original) A scanner using said MOS sensor according to claim 1.

38. (Original) A scanner using said MOS sensor according to claim 3.

- 39. (Original) A scanner using said MOS sensor according to claim 4.
- 40. (Original) A scanner using said MOS sensor according to claim 5.
- 41. (Original) A scanner using said MOS sensor according to claim 6.
- 42. (Original) A scanner using said MOS sensor according to claim 10.
- 43. (Original) A scanner using said MOS sensor according to claim 12.
- 44. (Original) A scanner using said MOS sensor according to claim 13.
- 45. (Original) A scanner using said MOS sensor according to claim 14.
- 46. (Original) A scanner using said MOS sensor according to claim 15.
- 47. (Original) A mobile information terminal using said MOS sensor according to claim 1.
- 48. (Original) A mobile information terminal using said MOS sensor according to claim 3.
- 49. (Original) A mobile information terminal using said MOS sensor according to claim 4.
- 50. (Original) A mobile information terminal using said MOS sensor according to claim 5.
- 51. (Original) A mobile information terminal using said MOS sensor according to claim 6.

52. (Original) A mobile information terminal using said MOS sensor according to claim 10.

53. (Original) A mobile information terminal using said MOS sensor according to claim 12.

54. (Original) A mobile information terminal using said MOS sensor according to claim 13.

55. (Original) A mobile information terminal using said MOS sensor according to claim 14.

56. (Original) A mobile information terminal using said MOS sensor according to claim 15.

57. (Original) A fingerprint reading device using said MOS sensor according to claim 1.

58. (Original) A fingerprint reading device using said MOS sensor according to claim 3.

59. (Original) A fingerprint reading device using said MOS sensor according to claim 4.

60. (Original) A fingerprint reading device using said MOS sensor according to claim 5.

61. (Original) A fingerprint reading device using said MOS sensor according to claim 6.

62. (Original) A fingerprint reading device using said MOS sensor according to claim
10.

63. (Original) A fingerprint reading device using said MOS sensor according to claim
12.

64. (Original) A fingerprint reading device using said MOS sensor according to claim
13

65. (Original) A fingerprint reading device using said MOS sensor according to claim
14.

66. (Original) A fingerprint reading device using said MOS sensor according to claim
15.

67. (Original) An electric apparatus having said MOS sensor according to claim 1
wherein said electronic apparatus is selected from the group consisting of a digital still
camera, a mobile phone, a mobile game device, and a personal computer.

68. (Original) An electric apparatus having said MOS sensor according to claim 3
wherein said electronic apparatus is selected from the group consisting of a digital still
camera, a mobile phone, a mobile game device, and a personal computer.

69. (Original) An electric apparatus having said MOS sensor according to claim 4
wherein said electronic apparatus is selected from the group consisting of a digital still
camera, a mobile phone, a mobile game device, and a personal computer.

70. (Original) An electric apparatus having said MOS sensor according to claim 5
wherein said electronic apparatus is selected from the group consisting of a digital still
camera, a mobile phone, a mobile game device, and a personal computer.

71. (Original) An electric apparatus having said MOS sensor according to claim 6 wherein said electronic apparatus is selected from the group consisting of a digital still camera, a mobile phone, a mobile game device, and a personal computer.

72. (Original) An electric apparatus having said MOS sensor according to claim 10 wherein said electronic apparatus is selected from the group consisting of a digital still camera, a mobile phone, a mobile game device, and a personal computer.

73. (Original) An electric apparatus having said MOS sensor according to claim 12 wherein said electronic apparatus is selected from the group consisting of a digital still camera, a mobile phone, a mobile game device, and a personal computer.

74. (Original) An electric apparatus having said MOS sensor according to claim 13 wherein said electronic apparatus is selected from the group consisting of a digital still camera, a mobile phone, a mobile game device, and a personal computer.

75. (Original) An electric apparatus having said MOS sensor according to claim 14 wherein said electronic apparatus is selected from the group consisting of a digital still camera, a mobile phone, a mobile game device, and a personal computer.

76. (Original) An electric apparatus having said MOS sensor according to claim 15 wherein said electronic apparatus is selected from the group consisting of a digital still camera, a mobile phone, a mobile game device, and a personal computer.

77. (New) The method according to claim 1 wherein the first object is second object.

78. (New) The method according to claim 3 wherein the first object is second object.

79. (New) The method according to claim 4 wherein the first object is second object.

80. (New) The method according to claim 5 wherein the first object is second object.

81. (New) The method according to claim 6 wherein the first object is second object.

82. (New) The MOS sensor according to claim 19 wherein the plurality of first pixels are the plurality of second pixels.

83. (New) The MOS sensor according to claim 21 wherein the plurality of first pixels are the plurality of second pixels.

84. (New) The MOS sensor according to claim 22 wherein the plurality of first pixels are the plurality of second pixels.

85. (New) The MOS sensor according to claim 23 wherein the plurality of first pixels are the plurality of second pixels.

86. (New) The MOS sensor according to claim 24 wherein the plurality of first pixels are the plurality of second pixels.

87. (New) A driving method of a MOS sensor having a plurality of pixels in an image pick up unit, each of said pixels comprising:

- a reset transistor;

- a photoelectric conversion element having a first terminal connected to one of source or drain terminals of said reset transistor, and a second terminal connected to a photoelectric conversion element side power source line;

- a reset signal line connected to a gate terminal of said reset transistor;

- a signal amplifier circuit having an input terminal connected to said one of the source or drain terminals of said reset transistor;

- a reset side power source line connected to other one of the source or drain terminals of said reset transistor;

- said method comprising the steps of:

- imaging a first object on trial; and

imaging a second object ordinarily.

88. (New) A driving method of a MOS sensor having a plurality of pixels in an image pick up unit, each of said pixels comprising:

- a reset transistor;

- a photoelectric conversion element having a first terminal connected to one of source or drain terminals of said reset transistor, and a second terminal connected to a photoelectric conversion element side power source line;

- a reset signal line connected to a gate terminal of said reset transistor;

- a signal amplifier circuit having an input terminal connected to said one of the source or drain terminals of said reset transistor;

- a reset side power source line connected to other one of the source or drain terminals of said reset transistor;

- said method comprising the steps of:

- imaging a first object on trial, comprising the steps of:

- resetting said plurality of pixels at a same time; and

- sequentially selecting a part of said plurality of pixels to output signals of the selected pixels;

- determining a storage period in accordance with a period from the time of said resetting to a time when the signal of the selected pixels saturates; and

- imaging a second object in the storage period, comprising the steps of sequentially selecting all of said plurality of pixels to output signals of the selected pixels.